

Systematic Review of the Representation of Female Athletes in Rehabilitation Following Anterior Cruciate Ligament Reconstruction

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Introduction. Despite a worldwide rise in female athletic participation, females remain underrepresented in sports medicine research. Females have a relatively high prevalence of anterior cruciate ligament (ACL) injury; however, the representation of female athletes in the science driving postop ACL rehabilitation is not clear. This study systematically reviews the literature on postop ACL rehabilitation and assesses the representation of female athletes.

Methods. A systematic review was conducted, adhering to PRISMA guidelines. Studies were analyzed based on: study population, athletic caliber, menstrual status, research theme, study impact, sample size, time to return to sport (RTS), and graft failure rate. Population categories included males-only, females-only, mixed-sex, and male vs. female comparisons. Athletic caliber had six tiers. Menstrual status was categorized as natural, hormonal contraception, irregularities, mixed, or unclassified. Research themes were health-focused, performance-focused, or combined. Study impact was assessed via journal impact factor.

Results. Females comprised 44.6% of ACLR participants. No female-only studies were found; 9% were male-only, 69.7% mixed-sex, 9% male vs. female sub-analysis, and 6% male vs. female features. Top athletic tiers and menstrual status were not considered. Females were underrepresented in studies evaluating RTS timeline and graft failure rate.

Conclusions. Female representation in ACLR postop rehabilitation research is disproportionately low. Studies that include female athletes at equal or near-equal rates overlook biological differences such as hormonal variations, which may influence recovery outcomes. The lack of tailored rehabilitation protocols could result in suboptimal recovery outcomes for female athletes. Level of Evidence: Level IV, Systematic Review of Level I – IV studies.

Bryan Vopat reports relationships that include: consulting or advisory with Artelon and Stryker Orthopaedics; equity or stocks in Carbon 22, Spinal Simplicity, and Altior; and board membership in American Orthopaedic Foot and Ankle Society. Ashley Herda reports a relationship with The University of Kansas Health System that includes: consulting or advisory. The other authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.